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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
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EXAMINER

F3M1/0226

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LEUTGERT, J PAPER NUMBER

6

3302  
DATE MAILED:

02/26/98

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

### OFFICE ACTION SUMMARY

- Responsive to communication(s) filed on \_\_\_\_\_
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire THREE (3) month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

- Claim(s) 1 - 28 is/are pending in the application.  
Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- Claim(s) \_\_\_\_\_ is/are allowed.
- Claim(s) 1 - 28 is/are rejected.
- Claim(s) \_\_\_\_\_ is/are objected to.
- Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

- Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- All  Some\*  None of the CERTIFIED copies of the priority documents have been
- received.
- received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

- Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

- Notice of Reference Cited, PTO-892
- Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- Interview Summary, PTO-413
- Notice of Draftsperson's Patent Drawing Review, PTO-948
- Notice of Informal Patent Application, PTO-152

-SEE OFFICE ACTION ON THE FOLLOWING PAGES-

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***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 112***

2. Claim 25 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 25 provides coverage on a malleable shaft that could only comprise one elongate coil of a flexible and resilient metal. The specification fails to describe an embodiment in which only one metal coil is used to provide malleability to the shaft.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8, 11, 12, 17 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 8, recitation that the shaft is "malleable" is redundant (note "a malleable shaft" recited in claim 1) and should be deleted.\

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- As to claim 11, it appears that the claimed plurality of optical fibers should be further limiting the means for transmitting light that is recited in claim 1 and not recited as an additional element to the means for transmitting.
- As to claim 12, the “camera control means” is not defined with a function as required by 35 U.S.C. 112, sixth paragraph.
- As to claim 17, term “said support body” lacks antecedent basis.
- As to claim 23, the recitation that the cable means comprises a “cable” makes the claim indefinite since it is unclear as to what element this is referring. Note that the cable means includes a plurality of electrical conductors and a plurality of optical fibers as recited in claim 20. It appears that applicant might have intended to claim that the cable means further comprises a sheath that surrounds the electrical conductors and optical fibers (note claim 19). It appears to be this “sheath” that is removably disposed in the groove in frictional engagement with the body of flexible material.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1, 2, 8, 12, 13, 20, 21, 24 and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Cooper et al. (U.S. Pat. 4,727,416).

Cooper et al. disclose a video camera (33-36), a cable (30a,30b,34) including means to transmit light and electrical conductors, a hollow, malleable shaft (13, col.2, lines 62-66), a video processor and control means (8), and a light source (col.3, lines 52-58). As to claims 2 and 13, the extension of the cable through the interior of the hollow shaft anticipates a releasably attached arrangement.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, 15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. in view of Reid, Jr. (U.S. Pat. 4,800,870).

Cooper et al. discloses a malleable shaft which includes a hollow rod made of a malleable metal and fails to disclose a rod of elastomeric material with a metal wire lengthwise through the rod. Reid, Jr. discloses device having malleable characteristics wherein, instead of the shaft (6) being made of a malleable material, the shaft is a rod of elastomeric material with a metal wire (7)

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extending therethrough (note Fig.2). One of ordinary skill in the art would consider these obvious alternative arrangements. Although there are advantages for the use of both, one would be motivated to use the rod/metal wire arrangement to decrease the amount of the more costly metal used to provide the malleability in the device and the allow for the option of making the device more flexible by removing the wire.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. in view of Reid, Jr., as applied to claim 15 above.

Neither Cooper et al. nor Reid, Jr. disclose any particular type of malleable metal. However, since certain forms of aluminum and lead are conventionally known as having malleable characteristic, one of ordinary skill would obviously consider aluminum or lead amongst any know malleable metal as a matter of design choice.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al.

Although Cooper et al. disclose a separate sheath for each the optical fibers and the electrical wiring (best shown in Figure 4), it would have been obvious to one of ordinary skill to have incorporated both the electrical wiring and the optical fibers into a single sheath to decrease the size of the entire cable and decrease material needed to sheath the cable.

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11. Claims 1-7, 11-16, 18, 19, 20-24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (U.S. Pat. 4,616,631) in view of Adair (U.S. Pat. 5,489,256) and further in view of Reid, Jr.

Takahashi discloses a cable (11, Fig.4) including optical fibers (8) and electrical conductors (9) and a flexible shaft (1) having a groove for releasably accommodating the cable (Fig.4). Since the Takahashi disclosure is mainly directed to the flexible shaft, Takahashi is silent as to the components of the distal end that perform the endoscope functions (i.e. imaging and illumination). However, one of mere ordinary skill, having common knowledge of conventional endoscopes (one such conventional design including a CCD at the distal end and a cable comprising the combination of electrical conductors, for the CCD, and optical fibers, for illumination, extending proximally through the insertion tube) would consider it obvious to include a video camera at the distal end, connected to electrical conductors (9) and receiving reflected illumination projected by optical fibers (8). If not inherent from Takahashi's inclusion of both electrical conductors and optical fibers and from conventional endoscope imaging structure, Adair provides just one example of the conventional video camera structure discussed above, including a CCD (14), electrical conductors (16) and optical fibers (20) (note Figs. 1-3). In view of this teaching, it would have been obvious to have included a CCD (video camera) at the distal end of the Takahashi device for imaging purposes. Even so, Takahashi also fails to teach that the flexible shaft (1) is malleable (although the term "malleable" could be construed as flexible, this term is construed as defined in the specification at, for example, page 7, lines 25-28). However,

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Reid, Jr. teaches the use of a malleable rod (7) inserted into a channel of a flexible shaft to provide sufficient rigidity and shape to a flexible shaft for controlled insertion into a desired area (col.3, lines 33-36). It would have been obvious to one of ordinary skill in the art to have provided a malleable rod for insertion into a channel of the flexible shaft (1) of Takahashi (Fig.4) for the same desirable reasons.

As to claim 4, note that frictional resistance holds the cable (11) in the groove of the shaft.

As to claims 6 and 18, neither Takahashi et al. nor Reid, Jr. disclose any particular type of malleable metal. However, since certain forms of aluminum and lead are conventionally known as having malleable characteristic, one of ordinary skill would obviously consider aluminum or lead amongst any know malleable metal as a matter of design choice.

As to claim 7, modification of the cable (11) of Takahashi to include a video camera, as described above, implies that frictional resistance from contact between the cable and the groove secures distal end of the shaft to the camera. One of ordinary skill in the art would consider any one of numerous securing devices, including a spring clip, as obvious equivalent means for securing the camera to the shaft.

As to claims 11 and 19, note Figure 3 of Adair with respect to the structure of video camera.

12. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. as applied to claim 1 above, and further in view of Clark et al (U.S. Pat. 5,607,094).

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As recognized by applicant, malleable "gooseneck" conduits are known in the art. Clark et al. teaches the use of a malleable "gooseneck" conduit (Figures 4 and 5) which comprises a dual helical coil structure. Since Cooper et al. only mentions that shaft (13) is malleable and does not attribute any specific structure of the shaft to provide that feature, one of ordinary skill in the art would obviously consider known malleable structures (i.e. goosenecks) to realize such malleability. As to claim 10, since the Cooper et al. device is used inside of a patient, it would be obvious to cover the shaft with a sheath to protect the patient from direct contact with metal (shock) and to provide an easily cleanable/sterilizable surface.

13. Due to 35 U.S.C. 112, first and second paragraph defects, claims 17 and 25 could not be examined with respect to the prior art.

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

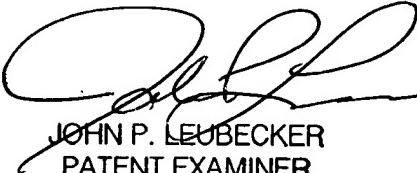
Opie, deceased et al. (U.S. Pat. 4,947,827)--note Figures 10-13 with respect to the groove in the flexible shaft.

Greene (U.S. Pat. 5,327,881)--note malleable tube (24).

Fritch et al. (U.S. Pat. 4,607,622)--note col.7, lines 41-57.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Leubecker whose telephone number is (703) 308-0951 and fax number is (703) 305-3590.



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PATENT EXAMINER  
GROUP 3300

J. Leubecker  
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